WHAT IS CLAIMED IS:

1. A light scanning device comprising:

light deflection means for deflecting a light beam emitted from a light source;

a scanning imaging optical system that forms a light spot on a scanned surface, using the light beam;

shape maintaining means for preventing or reducing deformation of a resin-made optical element included in the scanning imaging optical system;

scanning line curve correcting means for correcting a curve of a scanning line by using the shape maintaining means; and

scanning line inclination correcting means for correcting an inclination of the scanning line by using the shape maintaining means.

2. The light scanning device according to

claim 1, further comprising:

liquid crystal deflection means, provided between the light source and the scanned surface, for adjusting a position of the light spot on the scanned surface in a main scanning direction and/or a sub scanning direction; and

control means for controlling the liquid crystal deflection means.

3. The light scanning device according to claim 1, wherein the scanning line curve correcting means and the scanning line inclination correcting means are integrated with the shape maintaining means.

4. The light scanning device according to claim 1, wherein the shape maintaining means corrects and maintains a shape of the resin-made optical element in a sub scanning direction.

5. The light scanning device according to claim 1, wherein the scanning line curve correcting means and the scanning line inclination correcting means are integrated with the shape maintaining means,

the scanning line curve correcting means and the scanning line inclination correcting means adjust a posture of the resin-made optical element to perform initial adjustment of the curve and the inclination of the scanning line,

the light scanning device further comprises:

position detection means for detecting a position of the scanning line; or

color difference detection means for detecting a color difference,

and, based on a detection result of the position detection means or the color difference detection means, the liquid crystal deflection means is controlled to adjust the curve and inclination of the scanning line caused by time lapse change including temperature characteristics change of the resin-made optical element.

6. The light scanning device according to claim 5, wherein the shape maintaining means comprises:

gap maintaining means for setting a gap that is approximately equal to or smaller than a thickness of the resin-made optical element, the gap maintaining means being provided each of longitudinal both end parts of the resin-made optical element; and

two plate members, wherein one of the two plate members is fixed to one surfaces, in a sub scanning direction, of the gap maintaining means, and the other of the two plate members is fixed to the other surfaces, in the sub scanning direction, the gap maintaining means so that the two plate members sandwich and support both surfaces, in the sub scanning direction, of the resin-made optical element.

7. The light scanning device according to claim 4, wherein the shape maintaining means

comprises a plate member that having thin parts at respective both end parts thereof in a longitudinal direction of the plate member that is parallel to a longitudinal direction of the resin-made optical element, and

each of the thin parts is adjusted in at lest two directions to correct a posture of the resin-made optical element so that the curve and the inclination of the scanning line are corrected.

8. The light scanning device according to claim 6, wherein linear expansivity of the gap maintaining means is approximately same as that of the resin-made optical element.

9. The light scanning device according to claim 7, wherein the plate member is constituted by a metal plate member, and comprises a part that aligns a position of the resin-made optical element in the

main scanning direction.

10. An image forming apparatus that comprises light scanning device, wherein the light scanning device comprises:

light deflection means for deflecting a light beam emitted from a light source;

a scanning imaging optical system that forms a light spot on a scanned surface, using the light flux;

shape maintaining means for preventing or reducing deformation of a resin-made optical element included in the scanning imaging optical system;

scanning line curve correcting means for correcting a curve of a scanning line by using the shape maintaining means; and

scanning line inclination correcting means for correcting an inclination of the scanning line by using the shape maintaining means.

11. The image forming apparatus according to claim 10, further comprising a plurality of photoconductive drums as the scanned surface.

12. A light scanning device comprising:

an optical element that images, on an image holding body, a light beam emitted from a light source;

a holding member that holds the optical element;

scanning line curve correcting means for correcting the optical element in a sub scanning direction to correct a scanning line in the sub scanning direction, the scanning line being formed by the light beam; and

scanning line inclination correcting means for entirely tilting the optical element to correct an inclination of the scanning line,

wherein at least one part of the scanning line curve correcting means, and at least one part of the scanning line inclination correcting means are

provided integrally with the holding member.

13. The light scanning device according to claim 12, wherein the holding member includes a reference surface that contacts with the optical element, and that provides a position reference for the optical element in the holding member,

and the holding member further includes a supporting member that is long in a main scanning direction, and that supports the optical element from the sub scanning direction.

14. The light scanning device according to claim 13, wherein the reference surface is formed at a part that does not correspond to both end parts of the optical element.

15. The light scanning device according to claim 13, wherein the scanning line curve correcting means includes pressing means for pressing the optical element from an opposite side of a surface of the optical element that contacts with the supporting member.

16. The light scanning device according to claim 15, wherein the reference surface is formed at a position that does not correspond to a position where the pressing means presses the optical element.

17. The light scanning device according to claim 15, wherein a plurality of the pressing means are provided in a longitudinal direction of the supporting member.

18. The light scanning device according to claim 15, wherein a single number of the pressing means is provided approximately at a center in a longitudinal direction of the supporting member.

19. The light scanning device according to claim 15, wherein the pressing means comprises:

a pressing member that engages the optical element from the opposite side of the surface of the optical element that contacts with the supporting member; and

a pressing operation member that pushes the pressing member against the optical element.

20. The light scanning device according to claim 19, wherein the pressing operation member includes a tapered pin, and when the tapered pin is

moved in an axial direction of the tapered pin, the tapered pin pushes the pressing member against the optical element.

21. The light scanning device according to claim 20, wherein the pressing member has a cylinder shape of which axial direction is approximately parallel to an optical axis direction of the optical element, and an axial direction of the tapered pin is approximately orthogonal to the axial direction of the cylinder shape.

22. The light scanning device according to claim 21, wherein the optical element includes a depression part that is formed at a surface that belongs to the optical element, and that contacts with the pressing member,

and a length of the pressing member in the axial direction of the cylinder shape is longer than

a width of the depression part in the optical axis direction of the optical element.

23. The light scanning device according to claim 15, wherein the pressing means includes a screw that is moved relative to the optical element in a direction including the sub scanning direction.

24. The light scanning device according to claim 13, wherein the holding member comprises a sandwiching support member that is positioned at an opposite side of the surface of the optical element contacting with the supporting member, and that sandwiches and supports the optical element in cooperation with the supporting member.

25. The light scanning device according to claim 24, wherein at least one part of the pressing means, and at least one part of the scanning line inclination correcting means are provided integrally with the sandwiching support member.

26. The light scanning device according to claim 12, wherein the scanning line inclination correcting means entirely tilts the holding member together with the optical element to correct the inclination of the scanning line.

27. The light scanning device according to claim 12, wherein the scanning line inclination correcting means includes a supporting point member that provides a supporting point when the scanning line inclination correcting means tilts the holding member.

28. The light scanning device according to claim 27, wherein the supporting point is positioned near the optical axis of the optical element.

29. The light scanning device according to claim 12, wherein independently of each other, the scanning line curve correcting means and the scanning line inclination correcting means correct the scanning line.

30. The light scanning device according to claim 12, wherein the light scanning device is used for scanning a plurality of the image holding bodies by the light beams.

31. The light scanning device according to claim 30, wherein the plurality of image holding bodies are provided for forming toner images of colors that are different from each other.

32. The light scanning device according to claim 30, wherein the scanning line curve correcting means and the scanning line inclination correcting means correct at least one beam of the beams corresponding to the plurality of image holding bodies, respectively.

33. The light scanning device according to claim 32, wherein one of colors corresponding to the plurality of photoconductive bodies, respectively is set as a standard color,

and the scanning line curve correcting means

and the scanning line inclination correcting means perform correcting to conform, to the scanning line of the standard color, the scanning lines corresponding to the colors other than the standard color.

34. The light scanning device according to claim 33, wherein the standard color is black or magenta.

35. The light scanning device according to claim 30, further comprising:

deflecting means for deflecting the light beam;

an optical path refracting member that is provided between the light source and the deflecting means; and

writing start position adjusting means for changing the position of the scanning line in the sub

scanning direction by rotating the optical path refracting member approximately around an optical axis of the light beam to be refracted by the optical path refracting member.

36. The light scanning device according to claim 35, wherein the optical path refracting member includes a wedge-shaped prism.

37. The light scanning device according to claim 35, further comprising position displacement detection means for detecting a writing start position displacement in the sub scanning direction that is relative amount between the plurality of image holding bodies,

wherein feedback control of the writing start position adjusting means is performed based on the writing start position displacement detected by the position displacement detection means.

38. The light scanning device according to claim 35, wherein the position of the scanning line on the image holding body is controlled by using the writing start position adjusting means during writing of image data.

39. The light scanning device according to claim 12, further comprising a fixed member that supports the holding member such that the holding member is movable in a direction of correcting the inclination of the scanning line,

wherein the scanning line inclination correcting means comprises:

an elastic member that is provided integrally with the holding member and the fixed member, and that supports the holding member such that the holding member is movable relative to the fixed member in the direction of correcting the

inclination of the scanning line; and

holding member tilting means for tilting the holding member against force generated from the elastic member.

40. The light scanning device according to claim 39, wherein the holding member tilting means includes a screw.

41. The light scanning device according to claim 12, wherein the scanning line inclination correcting means comprises:

driving means, provided integrally with the holding member, for driving the holding member to be tilted;

inclination detection means for detecting the inclination of the scanning line; and

control means for causing the driving means to entirely tilting the holding member, in accordance

with the inclination of the scanning line detected by the inclination detection means, so that the inclination of the scanning line is corrected.

42. The light scanning device according to claim 41, further comprising a fixed member that supports the holding member such that the holding member is movable in a direction of correcting the inclination of the scanning line,

wherein the scanning line inclination correcting means comprises:

an elastic member that is provided integrally with the holding member and the fixed member, and that supports the holding member such that the holding member is movable relative to the fixed member in the direction of correcting the inclination of the scanning line; and

holding member tilting means that functions as the driving means, and that tilts the holding member against force generated from the elastic member.

43. The light scanning device according to claim 39, wherein the elastic member includes a leaf spring and/or a coil spring.

44. The light scanning device according to claim 41, wherein the elastic member includes a leaf spring and/or a coil spring.

45. A method of correcting a curve and/or inclination of a scanning line of light beam emitted from a light source, comprising the steps of:

correcting an optical element in a sub scanning direction to correct the curve of the scanning line, the optical element imaging the light beam on an image holding body; and

entirely tilting the optical element to

correct the inclination of the scanning line.

46. The method according to claim 45, further comprising the steps of:

supporting the optical element from the sub scanning direction; and

pressing the supported optical element in the sub scanning direction to correct the curve of the scanning line.

47. The method according to claim 45, further comprising the step of supporting the optical element by elastic force such that the optical element is movable in a direction of correcting the inclination of the scanning line,

wherein the step of entirely tilting comprises the step of tilting the supported optical element against the elastic force.

48. The method according to claim 45, further comprising the step of detecting an amount of the inclination of the scanning line,

wherein the step of entirely tilting comprises the step of tilting the optical element in accordance with the detected amount of the inclination of the scanning line.

49. An image forming apparatus comprising a light scanning device, wherein the light scanning device includes:

an optical element that images, on an image holding body, a light beam emitted from a light source;

a holding member that holds the optical element;

scanning line curve correcting means for correcting the optical element in a sub scanning direction to correct a scanning line formed by the

light beam in the sub scanning direction; and

scanning line inclination correcting means for entirely tilting the optical element to correct an inclination of the scanning line,

wherein at least one part of the scanning line curve correcting means, and at least one part of the scanning line inclination correcting means are provided integrally with the holding member.